Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

What is claimed is:

1. (previously presented) A computer network that comprises:
   one or more I/O devices on which data may be stored in files; and
   multiple computers coupled together, with each computer including a system memory having a plurality of caches with different bucket sizes,
   wherein each of the multiple computers is configured to cache data from the one or more I/O devices in the plurality of caches, and
   wherein each cache in the plurality of caches is capable of caching data from multiple files stored on the one or more I/O devices.
2. (previously presented) The computer network of claim 1, wherein each cache in the plurality of caches stores data from multiple files.
3. (previously presented) The computer network of claim 1, wherein the one or more I/O devices include at least one hard disk drive.
4. (previously presented) The computer network of claim 1, wherein each computer is configured to cache said data in system memory using at least three caches with different bucket sizes.
5. (previously presented) The computer network of claim 1, wherein additional computers may join the network, and wherein each of the multiple computers is configured to monitor which computers in the network are configured to cache said data.
6. (previously presented) The computer network of claim 5, wherein each of the multiple computers is configured to determine a remote connection address to all other computers in the network that are configured to cache said data.
7. (previously presented) The computer network of claim 6, wherein each of the multiple computers is further configured to send and receive targeted messages for maintaining cache coherency.

8. (previously presented) The computer network of claim 5, wherein each of the multiple computers is further configured to determine a list of computers in the network that are configured to cache said data, and configured to update the list when additional computers join the network.

9. (previously presented) A computer network that comprises:

one or more I/O devices capable of storing data in a file; and

multiple computers coupled together, with each computer including a system memory having multiple caches with different bucket sizes, and

wherein each of the multiple caches is capable of caching data from said file.

10. (previously presented) The computer network of claim 9, wherein each computer caches said data in system memory using at least three caches with different bucket sizes.

11. (previously presented) The computer network of claim 9, wherein computers may join the network, and wherein each of said multiple computers monitors which computers in the network are configured to cache said data.

12. (previously presented) The computer network of claim 11, wherein each of the multiple computers determine a remote connection address to all other computers in the network that are configured to cache said data.

13. (previously presented) The computer network of claim 12, wherein each of the multiple computers sends and receives targeted messages for maintaining cache coherency.

14. (previously presented) A cache driver to be executed by each of multiple computers coupled together in a network with at least one I/O device on which data may be stored in files, each of said multiple computers having an associated system memory, wherein the cache driver comprises:

code to create in the associated system memory at least two caches having different bucket sizes, wherein each cache is capable of caching data from multiple files stored on said I/O device; and

a routine that configures the computer to use said caches to cache data from said I/O device.

15. (previously presented) The cache driver of claim 14, further comprising:

code that configures the computer to maintain cache coherency by using targeted messages to invalidate remotely cached copies of data that has been modified.

16. (previously presented) The cache driver of claim 14, further comprising:

code that configures the computer to determine which computers in the network are configured to cache said data.

17. (previously presented) The cache driver of claim 14, further comprising:

code that configures the computer to determine a list of computers that are configured to cache said data, and further configures the computer to update the list after a computer that is configured to cache said data joins the network.

18. (previously presented) The cache driver of claim 17, further comprising:

code that configures the computer to determine a remote connection address for each computer in the list.

19. (previously presented) The cache driver of claim 14, wherein the at least one I/O device comprises at least one hard disk drive.

20. (previously presented) The cache driver of claim 14, wherein the cache driver configures each of the multiple computers to create in their associated system memory at least three caches having different bucket sizes.

21. (previously presented) A cache driver to be executed by each of multiple computers coupled together in a network with at least one I/O device on which data may be stored in files, each of said multiple computers having an associated system memory, wherein the cache driver comprises:

code to create in the associated system memory at least two caches having different bucket sizes, wherein each cache is capable of caching data from a given file stored on said I/O device; and

a routine that configures the computer to use said caches to cache data from said I/O device.

22. (previously presented) The cache driver of claim 21, further comprising:

code that configures the computer to maintain cache coherency by using targeted messages to invalidate remotely cached copies of data that has been modified.

23. (previously presented) The cache driver of claim 21, further comprising:

code that configures the computer to determine which computers in the network are configured to cache said data.

24. (previously presented) The cache driver of claim 21, further comprising:

code that configures the computer to determine a list of computers that are configured to cache said data, and further configures the computer to determine a remote connection address for each computer in the list.

25. (previously presented) A method of caching data from an I/O device that is coupled to a computer that includes a system memory, wherein the I/O device stores said data in multiple files, wherein the method comprises:

creating in system memory at least two caches with different bucket sizes; and

caching in each of the two caches data from multiple files stored on the I/O device.

26. (previously presented) The method of claim 25, wherein the I/O device is a hard disk drive.

27. (previously presented) The method of claim 25, wherein said creating includes creating three caches with different bucket sizes.

28. (previously presented) A method of caching data from a file on at least one I/O device that is coupled to a computer having a system memory, wherein the method comprises:

creating in system memory at least two caches with different bucket sizes; and

caching in each of the two caches data from said file.

29. (previously presented) The method of claim 28, wherein the at least one I/O device comprises a hard disk drive.

30. (previously presented) The method of claim 28, wherein said creating includes creating three caches with different bucket sizes.

31. (previously presented) A computer network that comprises:

one or more I/O devices configured to store data; and

multiple computers coupled together, wherein each of the multiple computers is configured to cache said data, and

wherein each of the multiple computers is configured to monitor which computers in the network are configured to cache said data.

32. (previously presented) The computer network of claim 31, wherein each of the multiple computers is further configured to determine a remote connection address for all other computers in the network that are configured to cache said data.

33. (previously presented) The computer network of claim 32, wherein each of the multiple computers is further configured to send and receive targeted messages for maintaining cache coherency.

34. (previously presented) The computer network of claim 31, wherein each of the multiple computers is further configured to determine a list of computers in the network that are configured to cache said data, and is still further configured to update the list when a computer that is configured to cache said data joins the network.

35. (previously presented) The computer network of claim 34, wherein each of the multiple computers is further configured to determine a remote connection address for each computer in the list, and is still further configured to maintain cache coherency by communicating targeted messages among said multiple computers.

36. (previously presented) The computer network of claim 31, wherein the one or more I/O devices include one or more hard disk drives.

37. (previously presented) A cache driver to be executed by each of multiple computers coupled together in a network with at least one I/O device configured to store data, the cache driver comprising:

a routine that configures each of said multiple computers to cache said data from said at least one I/O device; and

a program that configures each of said multiple computers to monitor which computers in the network are configured to cache said data.

38. (previously presented) The cache driver of claim 37, wherein the program further configures each of said multiple computers to determine a remote connection address for all other computers in the network having said routine operable to cache said data.

39. (previously presented) The cache driver of claim 38, wherein said routine further configures each of said multiple computers to send and receive targeted messages for maintaining cache coherency.

40. (previously presented) The cache driver of claim 37, wherein the program further configures each of said multiple computers to:

determine a list of computers in the network that are configured to cache said data; and

update the list when a computer that is configured to cache said data joins the network.

41. (previously presented) The cache driver of claim 40, wherein the program further configures each of said multiple computers to determine a remote connection address for each computer in the list; and wherein the routine further configures each of said multiple computers to maintain cache coherency by communicating targeted messages among said multiple computers.

42. (previously presented) The cache driver of claim 37, wherein the at least one I/O device comprises a hard disk drive.

43. (previously presented) A method of caching, in a network having multiple computers and at least one I/O device, wherein each of the multiple computers has an associated system memory, wherein the at least one I/O device stores data, wherein the method comprises:

determining a list of computers in the network that are configured to cache said data;

updating the list when a computer joins the network;

determining a remote connection address for each computer in the list;

caching said data in the system memory of one or more of said multiple computers; and

maintaining cache coherency by communicating targeted messages among said multiple computers.

44. (previously presented) The method of claim 43, wherein the at least one I/O device includes a hard disk drive.

45. (previously presented) The method of claim 43, wherein said caching includes:

creating in each of the associated system memories at least two caches with different bucket sizes; and

caching in each of the two caches data from multiple files stored on the I/O device.

46. (previously presented) The method of claim 45, wherein said creating includes creating in each of the associated system memories three caches with different bucket sizes.

47. (previously presented) The method of claim 43, wherein said data is a single file, and wherein said caching includes:

creating in each of the associated system memories at least two caches with different bucket sizes,

wherein each cache is capable of storing a portion of said data.

48. (currently amended) The method of claim ~~44~~ 47, wherein said creating includes creating in each of the associated system memories three caches with different bucket sizes.

49. (previously presented) A computer network that comprises:

one or more I/O devices configured to store data; and

multiple computers coupled together, wherein each of the multiple computers is configured to cache data from the one or more I/O devices,

wherein each of the multiple computers is configured to determine for each of the one or more I/O devices a list of computers in the network that are configured to cache data from that device.

50. (previously presented) The computer network of claim 49, wherein each of the multiple computers is further configured to determine a remote connection address for all other computers in each list.

51. (previously presented) The computer network of claim 50, wherein each of the multiple computers is further configured to send and receive targeted messages to maintain cache coherency.

52. (previously presented) The computer network of claim 49, wherein each of the multiple computers is further configured to update the lists when a computer joins the network.

53. (previously presented) A cache driver to be executed by each of multiple computers, wherein the multiple computers are coupled together in a network that includes multiple I/O devices, wherein the cache driver configures each of the multiple computers to:

determine for each of the multiple I/O devices a list of computers in the network that are configured to cache data from that I/O device; and

update the lists when a computer joins the network.

54. (previously presented) The cache driver of clam 53, wherein the cache driver further configures each of the multiple computers to:

determine a remote connection address for each remote computer in the lists.

55. (previously presented) The cache driver of claim 54, wherein the cache driver further configures each of the multiple computers to:

establish a communications channel with each remote computer in the sets.

56. (previously presented) The cache driver of claim 55, wherein the cache driver further configures each of the multiple computers to:

enable communication of cache data invalidation messages via the communications channels.

57. (previously presented) The cache driver of claim 53, wherein the cache driver further configures each of the multiple computers to:

cache, in system memory, data from one or more of the multiple I/O devices; and

maintain cache coherency by communicating targeted messages among said multiple computers.

58. (previously presented) The cache driver of claim 53, wherein the I/O device is a hard disk drive.

59. (previously presented) A method of caching in multiple computers data from one or more I/O devices coupled to a network, wherein the method comprises:

determining for each of the one or more I/O devices a list of computers in the network that are configured to cache data from that I/O device; and

updating the lists when a computer joins the network.

60. (previously presented) The method of claim 59, further comprising:

determining a remote connection address for each remote computer in the lists.

61. (previously presented) The method of claim 60, further comprising:

establishing a communications channel with each remote computer in the lists.

62. (previously presented) The method of claim 61, further comprising:

enabling communication of cache data invalidation messages via the communications channels.

63. (previously presented) The method of claim 60, wherein each of the multiple computers has an associated system memory, the method further comprising:

caching, in the associated system memories, data from one or more of the multiple I/O devices; and

maintaining cache coherency by communicating targeted messages among said multiple computers.

64. (new) A computer network that comprises:

one or more I/O devices configured to store data; and

multiple servers clustered together, wherein each of the multiple servers is configured to cache data retrieved from the one or more I/O devices in a local memory, and

wherein each of the multiple servers is capable of reducing the amount of local memory dedicated to caching if available memory on that server falls below a predetermined threshold.

65. (new) The computer network of claim 64, wherein each of the multiple servers is further configured to compare the available memory to the predetermined threshold after each cache miss.

66. (new) The computer network of claim 65, each of the multiple servers is further configured to allocate memory for an additional cache bucket after a cache miss if the available memory is above the predetermined threshold and a cache size limit has not been reached.

67. (new) The computer network of claim 64, wherein each of the multiple servers is further configured to periodically compare the available memory to the predetermined threshold.

68. (new) The computer network of claim 64, wherein as part of reducing cache size, each of the multiple servers is configured to release cache buckets until the available memory exceeds the predetermined threshold.

69. (new) The computer network of claim 68, wherein as part of releasing cache buckets, each of the multiple servers is configured to first release any cache buckets in a queue of free cache buckets, then to release least recently used cache buckets from a queue of occupied cache buckets, and then to release any cache buckets in a queue of cache buckets reserved for in-progress operations.

70. (new) The computer network of claim 64, wherein each of the multiple servers includes a system memory having a plurality of caches with different bucket sizes.

71. (new) The computer network of claim 70, wherein as part of reducing cache size, each of the multiple servers is configured to compare hit rates on the plurality of caches, and further configured to release memory allocated to the caches beginning with the cache having the lowest hit rate.

72. (new) A cache driver that can be installed in each of multiple servers clustered together in a network having at least one I/O device configured to store data, the cache driver comprising:

a routine that configures each of said multiple servers to cache data from said at least one I/O device; and

a procedure that configures each of said multiple servers to reduce cache size if free memory on that server is less than a specified value.

73. (new) The cache driver of claim 72, wherein the routine further configures each of the multiple servers to compare the free memory to the specified value after each cache miss.

74. (new) The cache driver of claim 73, wherein the routine further configures each of the multiple servers to allocate memory for an additional cache bucket after a cache miss if the free memory is above the specified value and a cache size limit has not been reached.

75. (new) The cache driver of claim 72, further comprising a scan routine that configures each of the multiple servers to periodically compare the free memory to the specified value.

76. (new) The cache driver of claim 72, wherein as part of reducing cache size, the procedure configures each of the multiple servers to release cache buckets until the free memory exceeds the specified value.

77. (new) The cache driver of claim 76, wherein as part of releasing cache buckets, the procedure configures each of the multiple servers to first release any cache buckets in a queue of free cache buckets, then to release least recently used cache buckets from a queue of occupied cache buckets, and then to release any cache buckets in a queue of cache buckets reserved for in-progress operations.

78. (new) The cache driver of claim 72, wherein each of the multiple servers includes a system memory having a plurality of caches with different bucket sizes.

79. (new) The cache driver of claim 78, wherein as part of reducing cache size, the procedure configures each of the multiple servers to compare hit rates on the plurality of caches and to release memory allocated to the caches beginning with the cache having the lowest hit rate.

80. (new) A method of caching in a network having multiple computers and at least one I/O device, wherein each of the multiple computers has an associated system memory, wherein the at least one I/O device stores data, wherein the method comprises:

caching said data in the system memory of one or more of said multiple computers; and

reducing cache size on one of said computers if free memory on that computer is less than a predetermined value.

81. (new) The method of claim 80, further comprising comparing the free memory to the predetermined value after each cache miss.

82. (new) The method of claim 81, further comprising allocating memory for an additional cache bucket after a cache miss if the free memory is above the predetermined value and a cache size limit has not been reached.

83. (new) The method of claim 80, further comprising comparing the free memory to the predetermined value at regular intervals.

84. (new) The method of claim 80, wherein said reducing cache size includes releasing cache buckets until the free memory exceeds the predetermined value.

85. (new) The method of claim 84, wherein said releasing cache buckets proceeds in an order beginning with cache buckets in a queue of free cache buckets, then with least recently used cache buckets from a queue of occupied cache buckets, and then with cache buckets in a queue of cache buckets reserved for in-progress operations.

86. (new) The method of claim 80, further comprising:

creating in system memory at least two caches with different bucket sizes;

creating cache driver of claim 72, wherein each of the multiple computers includes a system memory having a plurality of caches with different bucket sizes,

wherein said reducing cache size includes:

comparing usage of the caches; and

releasing memory allocated to the caches, beginning with the cache having the lowest usage.

87. (new) A computer network that comprises:

one or more I/O devices configured to store data; and

multiple computers coupled together, wherein the multiple computers are each configured to cache a respective set of I/O devices selected from said one or more I/O devices, and wherein the sets are each independently changeable while caching operations are ongoing.

88. (new) The computer network of claim 87, wherein the multiple computers each include a system memory having a plurality of caches with different bucket sizes.

89. (new) A cache driver capable of being installed on each of multiple servers clustered together in a network with a set of I/O devices configured to store data, the cache driver comprising:

a routine that configures the executing server to cache data from a subset of said I/O devices; and

a procedure that configures the executing server to change the subset of said I/O devices while caching operations are ongoing.

90. (new) The cache driver of claim 89, wherein said routine further configures the executing server to create in system memory at least two caches having different bucket sizes.

91. (new) A method of caching in a network having multiple servers and multiple I/O devices, wherein each of the multiple servers has an associated system memory, and wherein the multiple I/O devices are each configured to store data, the method comprising:

caching on each of the multiple servers data from a respective set of said I/O devices; and

dynamically changing the set of I/O devices being cached by one of the multiple servers.

92. (new) The method of claim 91, further comprising:

independently changing the set of I/O devices being cached by a different one of the multiple servers.

93. (new) The method of claim 91, wherein said changing comprises including an additional I/O device in caching operations performed by said one of the multiple servers.

94. (new) The method of claim 93, wherein said including an additional I/O device comprises notifying other servers with access to said additional I/O device that said one of the multiple servers is caching said additional I/O device.

95. (new) A method of caching in multiple computers data from one or more information storage devices coupled to a network, wherein the method comprises:

constructing for each computer a set of all information storage devices accessible by that computer;

determining for each information storage device in each set a list of computers in the network that are configured to cache data from that information storage device; and

reconstructing the lists after detecting a change in network configuration.

96. (new) The method of claim 95, wherein the change in network configuration includes a computer joining the network.

97. (new) The method of claim 95, wherein said constructing includes:

each computer identifying all computers in the network; and

each computer determining all information storage devices that it can access directly and all information storage devices it can access via other computers.

98. (new) The method of claim 95, wherein said determining includes:

enabling a selected computer's caching of data from a given information storage device;

notifying all computers with access to the given information storage device that the selected computer is configured to cache data from the given storage device.

99. (new) The method of claim 95, wherein said reconstructing includes:

disabling caching on all computers in the network;

individually enabling a selected computer's caching of data from a given storage device; and

with each enabling operation, notifying all computers with access to the given information storage device that the selected computer is configured to cache data from the given storage device.

100. (new) The method of claim 95, further comprising:

caching data from one or more information storage devices in a system memory of one or more of said computers.

101. (new) The method of claim 100, wherein said caching includes:

creating in each of the associated system memories at least two caches with different bucket sizes; and

caching in each of the two caches data from multiple files stored on the information storage device.

102. (new) A computer network that comprises:

one or more I/O devices; and

multiple servers clustered together, wherein each of the multiple servers is configured to determine a set of all I/O devices accessible by that server,

wherein each of the multiple servers is further configured to construct for each storage device in the set a list of servers that are configured to cache data from that I/O device, and

wherein each of the multiple servers is further configured to reconstruct the lists after detecting a change in network configuration.

103. (new) The computer network of claim 102, wherein the change in network configuration includes a server joining the network.

104. (new) The computer network of claim 102, wherein as part of said constructing, each server is configured, as part of enabling caching for a given I/O device, to notify all servers with access to that given I/O device that the server is configured to cache data from that given I/O storage device.

105. (new) A cache driver that can be installed on, and executed by, each of multiple servers clustered together in a network that includes at least one information storage device, wherein the cache driver configures each of the multiple servers to:

construct for each server a set of all I/O devices accessible by that server;

determine for each I/O device in the set a list of servers that are configured to cache data from that I/O device; and

reconstruct the lists after detecting a change in network configuration.

106. (new) The cache driver of claim 105, wherein the change in network configuration includes a server joining the network.

107. (new) The cache driver of claim 105, wherein as part of said constructing, the cache driver configures each of the multiple servers to:

identify all servers in the network; and

determine all I/O devices that the server can access directly and all I/O devices that it can access via other servers.

108. (new) The cache driver of claim 105, wherein as part of said determining, the cache driver configures each of the multiple servers to:

begin caching data from a given I/O device only after notifying all other servers with access to the given information storage device that the server is configured to cache data from the given storage device.

109. (new) The cache driver of claim 105, wherein as part of said reconstructing, the cache driver configures each of the multiple servers to:

disable caching of all I/O devices; and

re-enable caching of a given I/O device only after notifying all other servers with access to the given I/O device that the server is configured to cache data from the given I/O device.

110. (new) The cache driver of claim 105, wherein the cache driver further configures each of the multiple servers to:

cache data from one or more I/O devices in a system memory, wherein the caching includes creating in the system memory at least two caches with different bucket sizes.